

Mumbai University

Question Paper



NETWORK SECURITY

B.Sc.IT: Semester – V
October – 2012

Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) What is Packet Filter Firewall? Explain. (5)
- (B) How do IPSec maintain its Policy in Applications? (5)
- (C) What four requirements were defined for Kerberos? (5)
- (D) Describe OSI Security Architecture. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are the different Modes of DES? Explain any one in detail. (5)
- (B) What are Ciphers? What is the difference between “Transposition Cipher” and “Substitution Cipher”? (5)
- (C) How does DES works? (5)
- (D) Define Cryptosystem. Explain it with suitable diagram. (5)
- (E) What is Shift Cipher? Explain with simple example. (5)
- (F) Explain the working of Affine Cipher with an example. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Write a short note on ElGamal Signature Scheme. (5)
- (B) What is the concept of Birthday Attack? (5)
- (C) Explain Digital Signature Standard. (5)
- (D) What is Signature Scheme? List some of its examples. (5)
- (E) What are the types of different Attack Models of Signature Scheme? (5)
- (F) Describe Diffie-Hellman Key Exchange Algorithm. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Define Computer Security. Explain the necessity of Computer Security. (5)
- (B) What are the problems of Computer Security Mechanism? (5)
- (C) Describe CIA Triad of computer security. (5)
- (D) List & explain the categories of security mechanism of x.800. (5)
- (E) Explain the following terms: (5)
- (i) Authentication
 - (ii) Access Control
 - (iii) Non-Repudiation
- (F) What are Active Attacks? Discuss various Passive Attacks. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the General Format of PGP Message. (5)
- (B) What are three threats associated with user Authentication over a Network? (5)
- (C) Write short note on Kerberos. (5)
- (D) Explain the Header Format of MIME Messages. (5)
- (E) What are the Operational Services of PGP? Explain any one. (5)
- (F) In S/MIME, explain how Bob and Alice exchange the secret key for Encrypting Messages. (5)

[TURN OVER]

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the term: Security Association Bundle. (5)
- (B) Describe ESP Packet Format. (5)
- (C) Which Services are provided by IPsec? Explain. (5)
- (D) Describe Transport Mode and Tunnel Mode. (5)
- (E) What are the groups of IP Security Document? (5)
- (F) Describe Anti-Replay Attack. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is DMZ? Explain the Importance of DMZ. (5)
 - (B) What is the context of UNIX Password Scheme? (5)
 - (C) How Viruses are different from Worms and Trojan Horses? (5)
 - (D) What are the typical phases of operation of Virus or Worm? (5)
 - (E) What is Application Level Gateway? Explain its working. (5)
 - (F) What is DOS? How DOS is different from DDOS? (5)
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Question Paper



ASP.NET WITH C#

B.Sc.IT: Semester – V
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Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

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Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) What is assembly? Explain the purpose of assemblies in .NET Frame Work. (5)
- (B) What is ViewState? Explain. (5)
- (C) What is method overloading? Explain with examples. (5)
- (D) What are the application services provided in ASP.NET? Explain. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is namespace? Explain System namespace. (5)
- (B) Explain write() and WriteLine() Methods with examples. (5)
- (C) What is fall through in switch with respect to switch in C#? Explain. (5)
- (D) What are sealed classes and sealed methods? Why are they used? (5)
- (E) Explain the implicit and explicit conversion of data types with examples. (5)
- (F) What are indexers? Explain with example. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are the different types of collection in .NET? Explain. (5)
- (B) What are the two types of delegates? Explain each with an example. (5)
- (C) What is the use of menus and toolbars in windows application? Explain. (5)
- (D) What is Common DialogBox? Explain FontDialog with suitable example. (5)
- (E) Explain Sorted, SelectedMode, MultiColumn, SelectedItem and SelectedIndex properties of ListBox Control. (5)
- (F) Write a windows application to open the website mu.ac.in upon click the link. Write the necessary events and steps required for implementation. [Hint: Use Link Label] (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain .NET Framework architecture in detail. (5)
- (B) Explain the work of session state in ASP.NET. (5)
- (C) Explain the use of web.config and global.asx files in ASP.NET application. (5)
- (D) Explain ASP.NET Page Life Cycle. (5)
- (E) Write a short note on Server Site State Management. (5)
- (F) What is CSS? Explain Inline and Embedded CSS. (5)

[TURN OVER]

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain Content Page and Master Page with example. (5)
- (B) Explain Request and Response Objects of ASP.NET. (5)
- (C) Write a code to redirect the page to google.co.in when typed as google.com. (5)
- (D) Explain the following Validation Controls with examples: (5)
 - (i) *Compare Validator*
 - (ii) *Customer Validator*
 - (iii) *Range Validator*
 - (iv) *RegularExpressionValidator*
 - (v) *RequiredFieldValidator*
- (E) How to use the ASP.NET Validation Control to Validate the User Input. (5)
- (F) What is Regular Expression? Explain Regex Patterns. (5)

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is LINQ? Explain its syntax and give its advantages. (5)
- (B) List is LINQ? Explain ADO.NET objects. (5)
- (C) List all the step in order, to access a database through ADO.NET. (5)
- (D) How can query syntax and extension methods be mixed? Explain. (5)
- (E) Write short note on XPath. (5)
- (F) List the necessary steps to publish the website in ASP.NET. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is ASP.NET AJAX? Explain the working of AJAX. (5)
 - (B) Briefly explain the concept of jQuery and its syntax. (5)
 - (C) What is Web Service? Explain the basic steps of creating web service. (5)
 - (D) Explain DOM manipulation methods in jQuery. (5)
 - (E) Explain the basic steps for creating AJAX application with ASP.NET. (5)
 - (F) Write a jQuery Application to create an animation. (5)
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Question Paper



SOFTWARE TESTING

B.Sc.IT: Semester – V
October – 2012

Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

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(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) State and explain any five Stages of Software Testing Lifecycle. (5)
- (B) Explain the process of Class Testing. (5)
- (C) Explain the concept of Cyclomatic Complexity with example. (5)
- (D) State the guidelines for developing a Test Plan. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the basic Principles of Testing. (5)
- (B) What is Quality? Explain any four components of Quality. (5)
- (C) Discuss the process of achieving the Quality. (5)
- (D) Distinguish between Software Quality Control and Software Quality Assurance. (5)
- (E) What is the importance of Validation in Software Testing? (5)
- (F) Compare Black Box and White Box Testing. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the limitations of Functional Testing. (5)
- (B) What is the importance of Regression Testing in performing Functional Testing? (5)
- (C) What is Equivalence Class Testing? Explain two types. (5)
- (D) What is Retrospection? Explain Retrospection with reference to Functional Testing. (5)
- (E) What are the limitations of Boundary Value Analysis? (5)
- (F) A rectangle program accepts four integers as lengths for four sides of length from 1 to 100, inclusively. The output of the program is to determine whether the inputted numbers can form a rectangle, square or neither of these. (5)
 - (a) Identify the valid equivalence classes for Weak Normal Equivalence Class Testing and provide two different test cases for the same.
 - (b) Identify the output based valid and invalid equivalence classes for Strong Robust Equivalence Class Testing and provide two different test cases for the same.

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the terms DD Paths and DD Paths Graph. (5)
- (B) Explain the significance of data Flow Testing. (5)
- (C) What are the advantages of Structural Testing? (5)
- (D) Write a note on Du Path Test Coverage Metrics. (5)
- (E) Write a note on Basis Path Testing. (5)
- (F) Specify all DD-paths and draw the DD-Path graph for the following program graph starting at node 1. (5)

[TURN OVER]

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the advantages and disadvantages of Top Down Approach. (5)
- (B) "Integration testing is a crucial phase of testing process". Discuss. (5)
- (C) Discuss the significance of System Testing. (5)
- (D) Explain in detail Regression Testing. (5)
- (E) Write a note on Big Bang Approach of Integration Testing. (5)
- (F) Compare the objectives of Integration and System Testing. (5)

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Compare the objectives of Integration and System Testing. (5)
- (B) Explain the levels of Object Oriented Testing. (5)
- (C) Discuss the categories of Object Oriented Integration Testing. (5)
- (D) Give the essential components of Object Oriented Software Testing. (5)
- (E) Write the significance of Reliability Testing with reference to Object Oriented System Testing. (5)
- (F) What is UML? Discuss UML Support for Object Oriented Integration Testing. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the importance and contents of Testing Policy. (5)
 - (B) Explain the Statistical Tools used in Qualitative Analysis. (5)
 - (C) Why it is necessary to have Test Improvement Model? (5)
 - (D) State and explain the factors affecting the Effectiveness of Testing. (5)
 - (E) State and explain different Test Estimations. (5)
 - (F) What is the importance of Test Report? Explain different types. (5)
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ADVANCED JAVA

B.Sc.IT: Semester – V
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Time: 3 Hours**Total Marks:** 100

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(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Write a java program using Split pane to demonstrate that a screen divided in two parts. One part contains the examination seat number of student. When user selects the exam seat number, mark sheet of the student should get displayed in another pane. (5)
(B) Explain the Servlet Lifecycle with suitable diagram. (5)
(C) Write the advantages of JSP over Servlet. (5)
(D) Explain the use of Progress Bar Control with suitable example. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain ActionEvent with an example. (5)
(B) Explain with suitable example how siblings and child nodes are added in a tree. (5)
(C) Explain with suitable example the need of table model. (5)
(D) List and explain the layout orientations used for JList. Give suitable example. (5)
(E) What is the purpose of Tabbed Panes? Explain with suitable example. (5)
(F) Explain Custom Formatters with suitable example. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is CGI? What are the disadvantages of CGI? (5)
(B) Explain with suitable diagram request/response paradigm of servlet. (5)
(C) Explain the following methods of servlet interface: (5)
(a) *init*
(b) *destroy*
(c) *service*
(d) *getServiceConfig*
(e) *getServletInfo*
(D) What is the purpose of HttpServletRequest interface of servlet API? Explain with suitable example. (5)
(E) Write a simple servlet program that will display the factorial of a given number. (5)
(F) Write a servlet program that will read a string from user. If the string is 'Examination' then greet the user otherwise display error message. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the Scrollable Result Sets with suitable example. (5)
(B) What are the two ways of writing Scriptlets? Explain with suitable example. (5)
(C) Explain the Prepared Statement with suitable example. (5)
(D) Explain with example addition of Java Bean to a JSP page. (5)
(E) Write a JSP based application that serves the purpose of simple calculator. (5)
(F) Write a JSP code that will store the information of an employee into the database. Also it should display the information of employee. (5)

[Turn Over]

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the following phases of the JSF life cycle: (5)
(a) *Restore View*
(b) *Apply Request View*
- (B) Explain with suitable example <navigation-rule> element of faces-config.xml file of JSF. (5)
- (C) What is Facelet? Write the features of Facelet. (5)
- (D) List and explain different types of Enterprise Bean. (5)
- (E) Write the benefits of using EJB. (5)
- (F) Create a JSF Application for checking the validity of a user. (5)

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the working of Hibernate. (5)
- (B) Write the sample Hibernate Configuration File. Explain the elements of the file. (5)
- (C) What is the importance of Hibernate Mapping File? Explain with suitable example. (5)
- (D) Explain Filter Dispatcher and any two Actions components used by Struts. (5)
- (E) Explain in brief MVC Architecture with help of suitable diagram. (5)
- (F) Write a short on Interceptors in Struts. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is JNDI? Explain. (5)
- (B) List and explain the major components of JavaMail. (5)
- (C) What is the purpose of SOAP? How a SOAP Transaction is carried out? (5)
- (D) Explain the Session and Message Classes of JavaMail API. (5)
- (E) Explain the Naming Service with suitable diagram. (5)
- (F) Explain different type of Mail Protocols. (5)
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Question Paper



LINUX

ADMINISTRATION

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Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) What is RAID? What are its different types? What are different levels of RAID? (5)
- (B) Write the name and purpose of any five services that can be started from xinetd. (5)
- (C) List and explain different types of domain name servers. (5)
- (D) How can rc scripts be managed using chkconfig? Explain. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Enumerate the duties of Linux System Administrator. (5)
- (B) What is GRUB loader? How does it differ from Linux Loader? (5)
- (C) Explain bootstrapping in Linux. (5)
- (D) Explain the different directories in Linux. (5)
- (E) Write a short note on ext3 file system. (5)
- (F) What is partitioning of a hard disk? What are the different partitions to be created in Linux? What is swap partition? (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are the files required to be changed when we setup a new system or move the system from one location to another? (5)
- (B) Write a short note on IP Addressing. (5)
- (C) What is Dynamic Host Configuration Protocol? Write a sample dhcpd.conf File. (5)
- (D) How is DHCP Client Configured? Explain. (5)
- (E) What are the factors deciding the NFS installation? What are the general rules for design process of NFS? (5)
- (F) Explain the commands associated with NFS. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the [global] section of smb.conf file. (5)
- (B) Write and explain the default NTP configuration file. (5)
- (C) Enumerate the steps to configure NTP server using Autokey Encryption. (5)
- (D) Explain the steps to configure caching proxy server on Linux. (5)
- (E) How can we optimize NFS? Explain. (5)
- (F) Explain use of ssh, scp, sftp services. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are the files required for configuring the BIND Server? (5)
- (B) Explain the components of Email Delivery Process. (5)
- (C) Explain POP3 and IMAP4. (5)
- (D) Explain the different ways to maintain Email Security on Linux. (5)
- (E) Explain any five parameters of vsftpd.conf file. (5)
- (F) State and explain any five SSL-related configuration directives while running vsftpd over SSL. (5)

[TURN OVER]

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain any five global configuration directives of Apache web server. (5)
- (B) What are the packages required to configure secure server with SSL? How can we obtain digital certificate from certifying authority? (5)
- (C) Explain the working of Apache web server. (5)
- (D) What is the searching and indexing system provide with Linux? Explain its features. (5)
- (E) What is RSS feed? Explain the elements required in an RSS feed. (5)
- (F) What are the common mailman administrative tasks? Explain. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) How can we optimize FTP services on a Linux server? Explain. (5)
 - (B) How can we improve the performance of web services on a Linux server? Explain. (5)
 - (C) Why should we upgrade or customize Linux kernel? (5)
 - (D) Explain useradd command with any five options. (5)
 - (E) What is sudo? What are its features? (5)
 - (F) State and explain any five rpm command line options. (5)
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